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NWS: EHB-6, Maintenance Note 22
DoD: TO 31P1-4-108-578
FAA: EEM Modification Handbook 6345.1 CHG 11, Chap 10

INSPECTION OF ANTENNA COUNTERWEIGHT MOUNTING HARDWARE

DOPPLER METEOROLOGICAL RADAR WSR-88D

PUBLISHED UNDER AUTHORITY OF THE SECRETARIES OF
COMMERCE, THE AIR FORCE, THE NAVY, AND TRANSPORTATION

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NWS APPROVAL:

//SIGNED//
_____Date _____
John McNulty
Chief, Engineering Division

FAA APPROVAL:

//SIGNED//
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DoD APPROVAL:

BY ORDER OF THE SECRETARY OF THE AIR FORCE

MICHAEL E. RYAN, General, USAF
Chief of Staff

//SIGNED//
_____Date _____
Edward L. Berkowitz, Chief
System Support Branch
Operational Support Facility
TOMA

1. SUBJECT

Inspection of antenna counterweight mounting hardware.

2. PURPOSE

The purpose of this URGENT maintenance note is to inspect the antenna counterweight mounting hardware, ensuring it is tight. For Full Scale Production (FSP) pedestal sites, the antenna counterweight mounting hardware consists of two locking collars on each set of counterweights. For Limited Production Phase (LPP) pedestal sites, the mounting hardware consists of eight Allen-head threaded bolts with jam nuts on each set of counterweights. The number of LPP Counterweight Assemblies and mounting hardware is site dependent. Currently, there is no preventive maintenance inspection (PMI) to check the tightness of the counterweight mounting hardware. An annual PMI will be added to the PMI Work Cards to perform this inspection.

As a precaution, the Operational Support Facility (OSF) is requesting each site check the tightness of each antenna counterweight, and if necessary, use an Allen wrench and/or wrench to tighten the mounting hardware. This action will prevent the counterweights from falling, possibly causing personnel injury or damage to the equipment.

For additional information concerning this maintenance note, contact the OSF Hotline, Norman, Oklahoma; phone number: (800) 643-3363 or (405) 366-2980 or by e-mail at Hotline@osf.noaa.gov. An electronic copy of this document can be found at the following internet address: www.osf.noaa.gov/ssb/sysdoc/techman/tmlinks.htm

NOTE: This change has been reviewed and evaluated for impacts upon Y2K functionality and has no detrimental effect upon Y2K compliance issues.

3. SITES AFFECTED

This maintenance note applies to ALL NWS, DoD, and FAA Radar Data Acquisition (RDA) sites. For clarity, the LPP sites are listed below.

Site Name	SID	Org Code
Eastern Region		
WSFO Sterling, VA	LWX	WN9931
Southern Region		
WSO Houston, TX	HGX	WP9935
WSO Melbourne, FL	MLB	WP9204
WSFO Norman, OK	TLX	WP9921

Site Name	SID	Org Code
NSSL Norman, OK	NORO2	MGG000
Central Region		
WSO Dodge City, KS	DDC	WR9451
WSFO St Louis, MO	LSX	WR9971
NWSTC#1 Kansas City, MO	TTCM7	WL0000
DoD		
Altus AFB, OK	FDR	FE4419
Eglin AFB, FL	EVX	FE2823
Keesler AFB, MS (MNTC TRNG)	BIX	FE3010

4. ESTIMATED COMPLETION DATE

Immediately upon receipt of this Maintenance Note/Time Compliance Technical Order/ Modification Handbook 6345.1.

5. EQUIPMENT AFFECTED

Radar Data Acquisition (RDA) Group

6. SPARES AFFECTED

Not applicable.

7. MODIFICATION ACCOMPLISHED BY

Site Electronics Technicians will perform this maintenance note. Two technicians are required to perform the attached procedures.

8. MATERIAL REQUIRED

Not applicable.

9. SOURCE OF MATERIALS

Not applicable.

10. SPECIAL TOOLS AND TEST EQUIPMENT REQUIRED

Not applicable.

11. TIME AND PERSONNEL REQUIRED

Work Phases	AFSC Skills	Work-Hours
Unpacking	2E051	0.0
Disassembly	2E051	0.0
Installation	2E051	0.0
Assembly	2E051	0.0
Operational Check	2E051	0.75
Total Work-Hours		0.75

12. DOCUMENTS AFFECTED

Preventive Maintenance Inspection Work Cards, dated 30 July 1999
NWS EHB 6-503-2
AF TO 31P1-4-108-6WC-8
FAA TI 6460.1 V4

13. VERIFICATION STATEMENT

These procedures were successfully performed at OSF and WSFO Oklahoma City, OK.

14. DISPOSITION OF REMOVED AND REPLACED PARTS/MATERIALS

Not applicable.

15. PROCEDURES

See ATTACHMENT 1 for FSP locations.

See ATTACHMENT 2 for LPP locations.

16. FAA DISTRIBUTION

This directive is distributed to selected offices and services within Washington headquarters, the William J. Hughes Technical Center, the Mike Monroney Aeronautical Center, regional Airway Facilities divisions, and Airway Facilities field offices having the following facilities/equipment: NXRAD.

17. CHANGES TO TABLE OF CONTENTS (FAA)

This chapter will be included in the next revision to the table of contents for FAA Order 6345.1, Electronic Equipment Modification Handbook - Next Generation Weather Radar (NEXRAD).

18. RECOMMENDATIONS FOR CHANGES (FAA)

Forward any recommendations for changes to this directive through normal channels to the National Airway Systems Engineering Division, AOS-200, Operational Support.

19. REPORTING INSTRUCTIONS

a. NWS

Report completed modification on WS Form A-26, Engineering Management Reporting System Maintenance Record, according to instructions in EHB-4, Part 2, using reporting code RDA. Also, record the modification number in block 17(a) as M22 (see ATTACHMENT 4 for a completed sample of WS Form A-26).

b. DoD

Update the AFTO Form 95 to show TCTO compliance. Report TCTO compliance in accordance with TO 00-20-2, Table 3-10, Rule 9.

c. FAA (Changes to Recorded Data)

Enter this document number, date, and chapter number in the appropriate FAA Form 6032-1, Airway Facilities Modification Record.

d. All Agencies

Complete ATTACHMENT 3 and fax, mail, or e-mail information to:

(1) Mail Address: System Support Branch, Logistics Section
Operational Support Facility
3200 Marshall Ave., Suite 101
Norman, Oklahoma 73072-8028

(2) Fax Number: (405) 366-6553
ATTN: Logistics Section

(3) E-mail Address: Logistics@osf.noaa.gov

ATTACHMENT 1

INSTRUCTIONS TO CHECK TIGHTNESS OF FULL SCALE PRODUCTION (FSP) ANTENNA COUNTERWEIGHT MOUNTING HARDWARE

TOOLS REQUIRED:

3/16" Allen socket, 3/8 inch drive
Torque wrench, inch-pounds

1. At the Unit Control Position (UCP) Applications Terminal, enable local control of the Radar Data Acquisition (RDA) by entering **EN<Return>** at the command line of the RDA Control menu.

2. At the RDA site, perform the following shutdown procedures:

WARNING

HIGH VOLTAGE. Electrical voltage, power on. Ensure the Radar Transmitter is powered OFF and circuit breakers on the Power Distribution Panel (UD3A13/UD103A13) are locked out. Ensure Secondary Power Distribution Panel (UD7A3, UD7A29, or UD7A30) CB2, 4, and 6 Pedestal Motor Power is switched OFF and locked out. Ensure RDA Maintenance Panel Assembly (UD5A2) PEDESTAL ELECTRONICS POWER switch is OFF. Electrical voltages may cause severe shock or death on contact.

   a. At the RDA Man Machine Interface (MMI) main menu, enter **RELC<Return>** to request local control of the RDA, if not already done.

   b. Enter **STBY<Return>** at the RDA MMI command line. **NWS and FAA redundant systems:** Ensure both channels are placed in standby.

   c. Power off the Radar Transmitter and ensure that the three circuit breakers on the Transmitter Power Distribution Panel (UD3A13/UD103A13) are locked out. **NWS and FAA redundant systems:** Ensure both channels are powered off.

   d. On the RDA Maintenance Panel assembly (UD5A2), turn the PEDESTAL ELECTONICS POWER switch to the **OFF** position, and place a safety warning tag on the PEDESTAL ELECTONICS POWER switch.

   e. On the Secondary Power Distribution Panel (UD7A3), switch **OFF** and lock out CB2, 4, and 6 PEDESTAL MOTOR POWER. **NWS and FAA redundant systems:** Switch **OFF** and lock out CB2, 4, and 6 in the Secondary Power Panels UD7A30 and UD7A29, respectfully.

ATTACHMENT 1 (Continued)

INSTRUCTIONS TO CHECK TIGHTNESS OF FULL SCALE PRODUCTION (FSP) ANTENNA COUNTERWEIGHT MOUNTING HARDWARE

3. Inspect the Antenna Counterweights by performing the following steps:

   a. On the Azimuth Riser (UD2A1), set the SAFE/OPERATE switch to **SAFE**.

WARNING

ELEVATED WORK PLATFORM. Use all handrails, safety chains, safety belts/harnesses, safety rails, and ladders properly while servicing the antenna pedestal. Severe injury or death may occur from impacting the surface below.

   b. Place the Pedestal extension ladder on the Elevation Housing top ladder support bar.

WARNING

ROTATING EQUIPMENT. Ensure the azimuth stow mechanism is engaged in the STOW position. Ensure both left and right elevation stow mechanisms are engaged when stowing the antenna. Failure to STOW antenna may cause injury or death.

   c. While one technician moves the antenna, stow the antenna in the azimuth stow position.

   d. While one technician lifts the antenna, stow the antenna in the 0° elevation position (first stow pin). Ensure both left and right stow mechanisms are engaged.

   e. Use the appropriate safety belt/harness and attach it to the top ladder bar or securing location.

   f. From the Pedestal extension ladder, inspect the Antenna Counterweight Assembly mounting hardware to verify each mechanism is tight, with no gaps between the counterweight plates, and that the plates cannot be moved. The counterweights are not precision milled and slight imperfections maybe be visible. The mounting hardware consists of two (2) locking collars with a recessed Allen head bolt positioned at the end of each Antenna Counterweight Assembly.

      (1) If the locking collars are tight, no further action is required. Proceed to step 3.g.

      (2) If any locking collars are loose, use a 3/16” Allen socket with a torque wrench to tighten them to 90 inch-pounds. If this action cannot be performed, i.e., either unable to reach locking collars, or the counterweights need to be recompressed, notify the OSF Hotline, Norman, Oklahoma, phone number (800) 643-3363 or (405) 366-2980 or by e-mail at hotline@osf.noaa.gov.

   g. Disengage and secure the azimuth and elevation stow mechanisms.

ATTACHMENT 1 (Continued)

INSTRUCTIONS TO CHECK TIGHTNESS OF FULL SCALE PRODUCTION (FSP) ANTENNA COUNTERWEIGHT MOUNTING HARDWARE

h. Disconnect safety harness/belt and remove the Pedestal extension ladder from the elevation housing ladder bar.

i. On the Azimuth Riser (UD2A1), set the SAFE/OPERATE switch to **OPERATE**.

j. On the Secondary Power Distribution Panel (UD7A3), switch **ON** CB2, 4, and 6 PEDESTAL MOTOR POWER. **NWS and FAA redundant systems:** Switch **ON** CB2, 4, and 6 in Secondary Power Panels UD7A30 and UD7A29, respectfully.

k. On the RDA Maintenance Panel Assembly (UD5A2), remove the safety warning tag and turn the PEDESTAL ELECTONICS POWER switch to the **ON** position.

l. Power on the Radar Transmitter(s) by unlocking and switching **ON** the three circuit breakers on the Transmitter Power Distribution Panel (UD3A13/UD103A13). **NWS and FAA redundant systems:** Ensure both channels are powered **ON**.

m. After the transmitter preheat time delay and illumination of the available light on the Transmitter Control Panel (UD3A1), enter **OPER<Return>** at the RDA MMI command line.

n. At the RDA MMI main menu, return control of the RDA site to the Weather Forecast Office or Weather Station.

ATTACHMENT 2
INSTRUCTIONS TO CHECK TIGHTNESS OF LIMITED PHASE PRODUCTION (LPP) ANTENNA COUNTERWEIGHT MOUNTING HARDWARE

TOOLS REQUIRED:

3/8” Allen socket, 3/8 inch drive
Torque wrench, foot-pounds
1/2 inch open-end wrench

1. At the Unit Control Position (UCP) Applications Terminal, enable local control of the Radar Data Acquisition (RDA) by entering **EN<Return>** at the command line of the RDA Control menu.

2. At the RDA site, perform shutdown procedures.

WARNING

HIGH VOLTAGE. Electrical voltage, power on. Ensure the Radar Transmitter is powered OFF and circuit breakers on the Power Distribution Panel (UD3A13/UD103A13) are locked out. Ensure Secondary Power Distribution Panel (UD7A3, UD7A29, or UD7A30) CB2, 4, and 6 Pedestal Motor Power is switched OFF and locked out. Ensure RDA Maintenance Panel Assembly (UD5A2) PEDESTAL ELECTRONICS POWER switch is OFF. Electrical voltages may cause severe shock or death on contact.

a. At the RDA Man Machine Interface (MMI) main menu, enter **RELC<Return>** to request local control of the RDA, if not already done.

b. Enter **STBY<Return>** at the RDA MMI command line.

c. Power off the Radar Transmitter and ensure that the three circuit breakers on the Transmitter Power Distribution Panel (UD3A13/UD103A13) are locked out.

d. On the RDA Maintenance Panel assembly (UD5A2), turn the PEDESTAL ELECTONICS POWER switch to the **OFF** position, and place a safety warning tag on the PEDESTAL ELECTONICS POWER switch.

e. On the Secondary Power Distribution Panel (UD7A3), switch **OFF** and lock out CB2, 4, and 6 PEDESTAL MOTOR POWER.

ATTACHMENT 2 (Continued)

INSTRUCTIONS TO CHECK TIGHTNESS OF LIMITED PHASE PRODUCTION (LPP) ANTENNA COUNTERWEIGHT MOUNTING HARDWARE

3. Inspect the Antenna Counterweights by performing the following steps:

   a. On the Azimuth Riser (UD2A1), set the SAFE/OPERATE switch to **SAFE**.

WARNING

ELEVATED WORK PLATFORM. Use all handrails, safety chains, safety belts/harnesses, safety rails, and ladders properly while servicing the antenna pedestal. Severe injury or death may occur from impacting the surface below.

   b. Place the Pedestal extension ladder on the Elevation Housing top ladder support bar.

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WARNING

ROTATING EQUIPMENT. Ensure the azimuth stow mechanism is engaged in the STOW position. Ensure both left and right elevation stow mechanisms are engaged when stowing the antenna. Failure to STOW antenna may cause injury or death.

   c. While one technician moves the antenna, stow the antenna in the azimuth stow position.

   d. While one technician lifts the antenna, stow the antenna in the 0° elevation position (first stow pin). Ensure both left and right stow mechanisms are engaged.

   e. Use the appropriate safety belt/harness and attach it to the top ladder bar or securing location.

   f. From the Pedestal extension ladder, inspect the Antenna Counterweight Assembly mounting hardware for tightness. The mounting hardware consists of eight (8) Allen head threaded bolts with jam nuts (four on top and four on bottom of the counterweights). Some LPP sites may have counterweights placed in both horizontal sections/trays, in which case, there would be sixteen Allen head threaded bolts with jam nuts (eight on top and eight on the bottom).

      (1) Verify the bolts and jam nuts are tight using the following procedures:

      (2) To tighten a bolt, first use a 1/2” open-end wrench to loosen the jam nut.

      (3) Tighten the bolt to 35 foot-pounds using a 3/8” Allen socket and torque wrench.

      (4) Tighten the jam nut with a 1/2 inch open-end wrench securely against the plate.

ATTACHMENT 2 (Continued)

INSTRUCTIONS TO CHECK TIGHTNESS OF LIMITED PHASE PRODUCTION (LPP) ANTENNA COUNTERWEIGHT MOUNTING HARDWARE

(5) If this action cannot be performed, i.e., either unable to reach mounting hardware or the counterweights need to be recompressed, notify the OSF Hotline, Norman, Oklahoma, phone number (800) 643-3363 or (405) 366-2980 or by e-mail at hotline@osf.noaa.gov.

g. Disengage and secure the azimuth and elevation stow mechanisms.

h. Disconnect safety harness/belt and remove the Pedestal extension ladder from the elevation housing ladder bar.

i. On the Azimuth Riser (UD2A1), set the SAFE/OPERATE switch to **OPERATE**.

j. On the Secondary Power Distribution Panel (UD7A3), switch **ON** CB2, 4, and 6 PEDESTAL MOTOR POWER.

k. On the RDA Maintenance Panel Assembly (UD5A2), remove the safety warning tag and turn the PEDESTAL ELECTONICS POWER switch to the **ON** position.

l. Power on the Radar Transmitter(s) by unlocking and switching **ON** the three circuit breakers on the Transmitter Power Distribution Panel (UD3A13/UD103A13).

m. After the transmitter preheat time delay and illumination of the available light on the Transmitter Control Panel (UD3A1), enter **OPER<Return>** at the RDA MMI command line.

n. At the RDA MMI main menu, return control of the RDA site to the Weather Forecast Office or Weather Station.

NWS: EHB-6, Maintenance Note 22
DoD: TO 31P1-4-108-578
FAA: EEM Modification Handbook 6345.1 CHG 11, Chap 10

ATTACHMENT 3

ANTENNA COUNTERWEIGHT RETURN FORM

Site Name: _____

Site Identifier: _____

Total Time to complete this Maintenance Note/TCTO/EEM: _____

Technician's Name(s): _____

Technician's Phone Number: _____

Counterweights Loose: Yes: ☐ No: ☐

Date Completed: _____

Problem(s) Encountered:

_____

_____

_____

_____

Upon completion of this form, mail, fax, or e-mail this information to the OSF:

1. Mailing Address: System Support Branch, Logistics Section
   WSR-88D Operational Support Facility
   3200 Marshall Ave, Suite 101
   Norman, OK 73072-8028

2. FAX Number: (405) 366-6553,
   ATTN: Logistics Section

3. E-mail Address: Logistics@osf.noaa.gov